

What is claimed is:

1. A developing method for electrophotographic image for developing an electrophotographic image by use of a developing device comprising a developing mechanism
5 having a developer carrier for carrying a developer along a preset circulating route including a developing area and a developer restricting element for restricting the developer on the developer carrier, and a developer supply mechanism having storing means for the developer,
10 wherein said developing method comprises the steps of:
 using a start-up developer at an initial state of use of the developing mechanism; and
 using a replenishing developer differed in grain size or grain size distribution from the start-up
15 developer after an end of the initial state of use of the developing mechanism.
2. The developing method for electrophotographic image according to claim 1, wherein, when number
20 percentage of a fine powder component of $5\mu\text{m}$ or less in the start-up developer is N_{du} and number percentage of a fine powder component of $5\mu\text{m}$ or less in the replenishing developer is N_{tc} , the grain size distributions of the start-up developer and replenishing developer satisfy the following relational expressions:
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$$N_{du} \leq 20.0\%, \text{ and } 20.0\% < N_{tc} \leq 25.0\%$$
3. The developing method for photographic image according to claim 1, wherein when volume percentage of a fine powder component of $5\mu\text{m}$ or less in the start-up
30 developer is V_{du} and volume percentage of a fine powder component of $5\mu\text{m}$ or less in the replenishing developer is V_{tc} , the grain size distributions of the start-up developer and replenishing developer satisfy the following relational expressions:

$$V_{du} \leq 2.0\% \text{ and } 2.0 < V_{tc} \leq 5.0\%.$$
- 35 4. The developing method for electrophotographic

image according to claim 1, wherein, when a volume average grain size of the start-up developer is DVdu and a volume average grain size of the replenishing developer DVtc, the volume average grain sizes of the start-up developer and replenishing developer satisfy the following relational expressions:

$$0.3 \mu\text{m} \leq \text{DVdu} - \text{DVtc} \leq 1.2 \mu\text{m}, \text{ and } 7.5 \mu\text{m} \leq \text{DVtc} \leq 8.5 \mu\text{m}.$$

5. The developing method for electrophotographic image according to any one of claims 1 to 4 wherein, when a CV value shown by the volume average grain size of the start-up developer is CVdu and a CV value shown by the volume average grain size of the replenishing developer is CVtc, the CV values of the start-up developer and replenishing developer satisfy the following relational expression:

$$\text{CVdu} \leq \text{CVtc}.$$

6. The developing method for electrophotographic image according to claim 1, wherein the developer is a nonmagnetic one-component developer, and the developing method is applied to a nonmagnetic one-component image developing device.

7. A developing device for electrophotographic image comprising a developing mechanism having a developer carrier for carrying a developer along a preset circulating route including a developing area and a developer restricting element for restricting the developer on the developer carrier, and a developer supply mechanism having storing means for storing the developer, wherein the storing means is filled with a start-up developer in the vicinity of the developer carrier and a replenishing developer remoter than the start-up developer from the developer carrier, and both of the start-up developer and the replenishing developer have different grain sizes or grain size distributions.

8. The developing device for electrophotographic

image according to claim 7 wherein the storing means comprises:

5 a developer storing part filled with the start-up developer at least in the vicinity of the developer carrier; and

10 a replenishing developer cartridge part filled with the replenishing developer and provided separably from the developer storage part, which successively replenishes the replenishing developer to the developer storage part.

15 9. A printing device comprising an optical writing system for exposing a photosensitive drum to obtain a latent image, at least one developing device for visualizing the latent image on the photosensitive drum, a transfer unit for transferring the image visualized on the photosensitive drum to a sheet, and a fixing unit for fixing the image transferred to the sheet, wherein:

20 the developing device comprises a developing mechanism having a developer carrier for carrying a developer along a preset circulating route including a developing area and a developer restricting element for restricting the developer on the developer carrier, and a developer supply mechanism having storing means for storing the developer; and

25 the storing means is filled with a start-up developer in the vicinity of the developer carrier and a replenishing developer remoter than the start-up developer from the developer carrier, and both of the start-up developer and the replenishing developer have different grain sizes or grain size distributions.

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